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on its banks, between Zarizyn and Sarepta. *Elephas primigenius, Bos priscus,* Elasmotherium, *Camelus knoblochi* and several antelopes, stags, etc., are among the contents.——Remains of animals, the bones of which have apparently been broken by man, together with many stone implements, have been found in the crevices between the blocks of lava underlying a pumicestone pit near Andernach, on the Rhine. As the pumicestone filled the crevices to a depth of two or three feet, and the bones, etc., were beneath this filling-in, it is believed that there was a settlement on the spot, the food-remains from which fell into the crevices *before* the deposition of the pumicestone.——On the Middle Ural M. Malakhoff has explored the lake dwellings of the neighborhood of Ekaterinburg, and has discovered close by Irbit, very interesting accumulations of bones, lake dwellings on Lake Ayat, and stone and bone implements in a cavern close to the Mias ironworks.

MINERALOGY.[1]

NEW MINERALS.—I. *Jérémèiéwite* is a new mineral discovered by M. Jérémèiew in Southeastern Siberia, and named after him by Damour.[2] It occurs crystallized in regular hexagonal prisms, transparent and nearly colorless. Its hardness = 6.5 ; specific gravity 3.28. It has a vitreous fracture and is without cleavage. At first sight it resembles beryl, tourmaline or apatite.

Before the blowpipe it loses its transparency, blanches, and gives to the flame the green color characteristic of boric acid. It is with difficulty attacked by acids. With cobaltic nitrate, after heating, it takes a fine blue color.

It is essentially a borate of alumina with a small proportion of iron. A mean of three analyses gave :

B_2O_3	Al_2O_3	Fe_2O_3	K_2O	
40.19	55.03	4.08	0.70	= 100.

yielding the formula $(Al_2O_3, Fe_2O_3) BO_3$.

II. *Picro-epidote* is a name proposed by Damour to designate a variety of epidote from Lake Baikal, Siberia, which has magnesia as a base and is infusible. It occurs in white or yellowish-white small crystals in lapis lazuli. Des Cloiseaux has shown that the crystallographic and optical characters are those of epidote.

III. *Dumreicherite* is a new mineral of the alum group described by Dr. C. Doelter[3] as occurring in crevices in lava in the form of superficial crusts. It was apparently monoclinic, but had a fibrous structure. It is readily soluble in water, and has an astringent taste. Its composition, according to Kertscher, is :

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[1] Edited by Professor H. CARVILL LEWIS, Academy of Natural Sciences, Philadelphia, to whom communications, papers for review, etc., should be sent.

[2] Bulletin Soc. Min. de France, T. VI, p. 20, April, 1883.

[3] Zur Kenntniss der vulcanischen Gest. u. Min. d. Capverd'schen Inseln.

SO_3	Al_2O_3	MgO	H_2O	$NaCl$	
36.65	7.14	11.61	45.01	tr.	= 100.41.

giving the calculated formula $4\ MgSO_4 + Al_2S_3O_{12} + 36$ aq.

RECENT LITHOLOGICAL WORK.—It is daily becoming more evident that a classification of rocks either by their chemical composition alone or by the minerals they contain, is artificial and unsatisfactory, and that a true basis of classification is to be found only by combining the general characters of rocks with their mode of occurrence as elucidated by field work. Lithologists are finding that the microscope and the laboratory are not all-sufficient, but that observation of the geological relations of the rocks is of the first necessity. Lithology thus rises to a higher sphere, and not content with giving a multitude of names to rocks of varying texture and in different stages of decomposition, is becoming one of the most important methods of geological research.

Perhaps no one is striving more earnestly toward the establishment of this broader method of lithological work than Dr. M. E. Wadsworth, of Cambridge. In a forthcoming work to be published by the Museum of Comparative Zoölogy, he dwells upon the importance of grouping the characters of rocks, rather than taking any one character as a basis of classification, and compares the usually received classifications with the Linnean artificial botanical classification.

In the same essay certain conclusions are reached which are of much interest, and are often widely at variance with generally received theories. He holds that the interior of the earth is now liquid, that eruptive, volcanic and plutonic rocks are derived from original liquefied material, not from sedimentary deposits, and that our crystalline rocks are the result of the metamorphism of eruptive rocks rather than of sedimentary rocks. He holds that meteorites and the recent volcanic rocks are the only rocks which have not been altered, and makes them his basis of classification. He seems to hold that even the gneïsses have been altered from eruptive, volcanic rocks. Meteorites are regarded as having been derived from a hot, liquid mass, rather than from a gaseous or solid body, and it is suggested that they may have come from the sun. The appearance of the memoir in full is awaited with interest.

CHARCOAL AS A PRECIPITANT FOR GOLD.—Mr. Wm. Morris Davis[1] (Sr.) has discovered a novel and most interesting method for separating gold from its solution by employing charcoal. He has found that charcoal has a remarkable energy in causing the precipitation of gold from its chlorine solution, while other metallic and mineral constituents of the same solution are unaffected. The gold is thus both deposited and refined. All that is necessary is to pass the solution of the gold ore through a charcoal filter, when the gold in a pure state is deposited upon the charcoal, which may then be burned and a button of gold readily obtained.

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[1] Journ. Franklin Inst., April, 1883.

This discovery, so simple in its method, was at first ridiculed by chemists. Repeated experiments have, however, shown its efficacy. Not only are no other substances than gold thus deposited, but the gold itself is completely separated from its terchloride solution, the liquid after having passed through the charcoal containing not even a trace of gold. As copper is not affected by the passage through the charcoal filter, that metal may be afterwards deposited by contact with scrap-iron. Silver would already have been precipitated as chloride in the original solution. By this process, therefore, gold, silver and copper may each be separated by most inexpensive methods from the same solution.

The explanation of the remarkable property of charcoal here described, lies in the fact that, as shown by experiment, it has the property of converting chlorine into hydrochloric acid. It oxidizes at the expense of the water, and liberates hydrogen, which unites with the chlorine. It follows, therefore, that the gold is deposited, not from any affinity for carbon, but simply because the chlorine in which it was soluble has been taken away to form hydrochloric acid, in which gold is insoluble. It also follows that copper and other metals soluble in hydrochloric acid are not affected by the conversion.

CRYSTALLIZED SERPENTINE FROM DELAWARE.—Professor H. C. Lewis[1] has described certain crystals of serpentine which occur in the deweylite of Way's quarry, Delaware. The deweylite contains angular fragments of quartz, such as would be produced by throwing a heated quartz crystal into cold water. It also contains rounded masses of feldspar which are more or less altered into deweylite. The deweylite is thus shown to be probably the result of the alteration of graphic granite.

The crystals of serpentine, of a smoky pearl color, have a micaceous cleavage, and in the polariscope are shown to be biaxial with a small optic-axial divergence. The physical and chemical characters, including an analysis by Mr. Haines, are given, and the mineral is proved to be a true serpentine. The cleavage and the optical characters show that it is crystallized.

THE FLUORINE MINERALS.—In an extended review of the fluorine minerals, by Professor P. Groth,[2] our knowledge of these minerals is rendered much more exact. He treats with especial detail the cryolite group of minerals. *Cryolite* is shown to be monoclinic instead of triclinic. *Pachnolite* and *thomsenolite* are shown to be species distinct from each other, the latter mineral containing one molecule of water, as already proved by Brandl.[1] The crystals of pachnolite are monoclinic, having generally the form of slender prisms, the prisms being striated horizontally. Thomsenolite has the same characters, both minerals decrepitating strongly when heated. Ralstonite, an isometric mineral, and chiolite, a tetragonal mineral resembling cryolite, have been re-examined and Brandl gives them new formulæ. Arksutite is shown to be merely a mixture of cryolite and pachnolite, and not a distinct species.

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[1] Proc. Acad. Nat. Sci. Phila., Feb., 1883.

[2] Zeitschr. f. Kryst., etc., VII, 4th and 5th Nos.

A NORWEGIAN DUST SHOWER.--On the 26th of last February a fine dust was discovered overlying the snow in Trondhjem Amt (district of Drontheim), in Norway, and like the dust showers which followed the volcanic outbreak of 1876, was thought to indicate a recent volcanic eruption in Iceland. Dr. Reusch, of the mineralogical faculty of the University of Christiania, has, however, shown that it is not of eruptive origin, but consists of common sand, fine particles of quartz, hornblende and talc and some associated fine particles of vegetable matter. Although the volcanic origin of this dust has been disproved, it is nevertheless of interest, considering the wide extent of snow-covered country over which this dust was deposited.

MICROLITE FROM ELBA.—A. Corsi[2] has found small crystals of microlite at several localities in Elba. It occurs in granitic rocks and is associated with albite, orthoclase, tourmaline, lepidolite, etc. The principal forms are octahedra and rhombic dodecahedra. In color it varies at different localities from dark, dirty green to yellow, and from being opaque to translucent, the transmitted light being reddish-yellow. The powder is grayish-white. The other characters are those usual to microlite.

AMELIA COUNTY, VA., MINERALS.—Professor W. F. Fontaine[3] contributes an interesting article upon the minerals of Amelia Co., Va., giving much information not heretofore published. The microlite and monazite, columbite, fluorite, beryl, orthite, helvite, etc., are each described in detail. In the description of helvite, which includes Mr. Sloan's analysis, Professor Fontaine omits to make any mention of the original discovery of that mineral by Professor Lewis.

THE WM. S. VAUX COLLECTION.—This magnificent collection of minerals and archæological specimens, bequeathed under certain conditions to the Philadelphia Academy of Natural Sciences, has finally been received by that institution. There are over six thousand trays of minerals in the collection, having an aggregate value of $40,000. Many of the specimens are of rare beauty and perfection, some of them being unique in those respects. The collection, the result of a lifetime's labor of love, represents the inorganic world in its most beautiful garb, and incites a higher appreciation of nature's handiwork. The academy has made alterations in its building so as to secure special rooms for the collection, over which a special curator is also to be appointed. The conditions of the gift are such as to surround the collection with every safeguard against depredation.

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[1] AMER. NATURALIST for Jan., 1883, p. 76.

[2] Boll. R. Com. Geologico, 1881. 564.

[3] *Am. Jour. Sc. and Arts*, May, 1883.

The archæological collection is estimated to be worth at least $10,000. It includes suites of specimens from almost all parts of the world, and is especially rich in relics of the Swiss lake dwellers, in pottery and implements of the American mound-builders, and in vases and idols from Mexico and Peru.

The sum of $11,000 is also given to be applied to the fitting up of cases, to the care of the collections and to the purchase of specimens and books.

BOTANY.[1]

NEW WESTERN GRASSES.—No full revision of North American grasses has been attempted in many years. The writer has been a careful student of the order, and has, during the past ten years, been accumulating material for its thorough investigation.

During the past three or four years many large collections of Western grasses, made by Howell and Henderson in Oregon, Suksdorf in Washington Terr., Parish, Cleveland and Lemmon in California and Arizona, G. R. Vasey in Arizona and New Mexico, Jones in Utah and California, Reverchon and Havard in Texas and Arkansas, Wolf in Illinois, and Gattinger in Tennessee, have been in my hands; and as the result several new species have been already published and a number of others are identified and will be described and published at an early day.

Professor Scribner, of Philadelphia, has also during the past few years been carefully studying the order, having been provided with the material of several collectors. We have freely consulted together, and tried to arrive at clear results, and it is our purpose jointly to publish as soon as possible a catalogue as full and complete as our material will permit.

Toward the furtherance of this object we would be glad of the assistance of all botanists and collectors in the communication of specimens and notes which may render our labors as effective as possible.

The following list indicates some unpublished species, most of which are based upon recent collections, a few, however, having

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[1] Edited by PROF. C. E. BESSEY, Ames, Iowa.